SUNREM Lisa Expanded Memory Card

Lisa Memory Upgrade

System Requirements

The Lisa Memory Upgrade requires:

- A Lisa computer.
- A Lisa compatible Operating System
  Such as:
  MacWorks Plus
  MacWorks v3.0
  Lisa Office System 7/7
- One or no Apple memory cards currently in the computer.

What is Included with the Lisa Memory Upgrade

The Lisa Memory Upgrade includes:

- 1 Memory Card with 1.5 mb RAM.
  (Memory sockets 1, 2 and 3 are populated, sockett 4 would be empty.)
- This User's Manual

Memory Upgrade Specifications

Chip Specification:
The Lisa Memory Upgrade requires 256k x 9 memory SIMMs (Single In-line Memory Modules).

Possible Configurations:: • 512k
• 1 Mb
• 1.5 Mb
• 2 Mb

Size: 280 mm Wide x 146 mm H

Installing the Memory Card

Instructions for installing the memory board can also be found in the Lisa 2 Owners Guide.

To install...

1. **Remove the back cover of the Lisa.**

This is done by disconnecting the power cord, mouse cable, and any other connection to the back of the computer. Then, unscrew the thumb screws until loose and carefully slide the back out and up.

2. **Remove the card cage.**

The assembly that holds the I/O, CPU, and Memory boards is not attached by any screws or cables. To take the cage out you simply place your thumbs against the lower edge of the cabinet and pull on the metal bar that extends the width of the cage.

3. **Remove one of the two memory cards.**

If only one or no memory cards exist, no other cards will need to be removed. If you do have more then one memory card, remove the card located in MEM 1 (closest to the CPU card).

To remove, lift up on the tabs located at each edge of the memory board, then pull up. The board should come out easily - do not try to force the board out.

Notice: Verify the jumper configuration on the Memory Upgrade (PAGE 4) before installing the Memory Upgrade card.

4. **Insert the Lisa Memory Upgrade board.**

The Memory Upgrade can be placed in either slot depending on the configuration. As to avoid any incompatible configuration, place Memory Upgrade card in MEM 1. However, jumper configurations will vary for the slot and configuration that is being used.

To install, carefully slide the Memory Upgrade card into the slot and press down on the tabs to secure the card into position. Make sure that the card is seated completely into the memory slot.

5. **Slide the card cage back into the computer.**

The card cage should slide in fairly easy. If you encounter some resistance, check the tabs on the memory card to make sure they are laying flat on the board. Push the cage in tightly from the base of the unit where the ports are located.

6. **Replace the back cover of the computer.**

This is done by inserting the four bottom panel tabs into the slots at the base of the cabinet. Hold the cover tightly against the back and tighten the finger screws at the top of the cover.

System Test

The installation process is now complete. Turn on the computer and watch as the system goes through the memory test. If the system checks out the memory successfully, you can be sure that the board has been installed properly.

To verify that it is accessing the proper amount of memory in the computer, wait until the computer boots up to the desktop, then select "About Finder" From the menu. This will tell you how much memory is available. With MacWorks Plus, this should say, 2048k available if you are upgrading to 2 mb. With MacWorks v3.0 it would say somewhere around 1932k available for the 2 mb upgrade.

Trouble shooting

If you receive an error or the memory doesn't match up with what you are upgrading to, double check the memory chip configurations on the card as well as the settings for the jumpers to make sure they are set properly.

Make sure you are using 256k x 9 SIMMs.

Jumper Configurations

In order to facilitate a number of different memory configurations, four jumpers are placed on the board to select or deselect memory options.

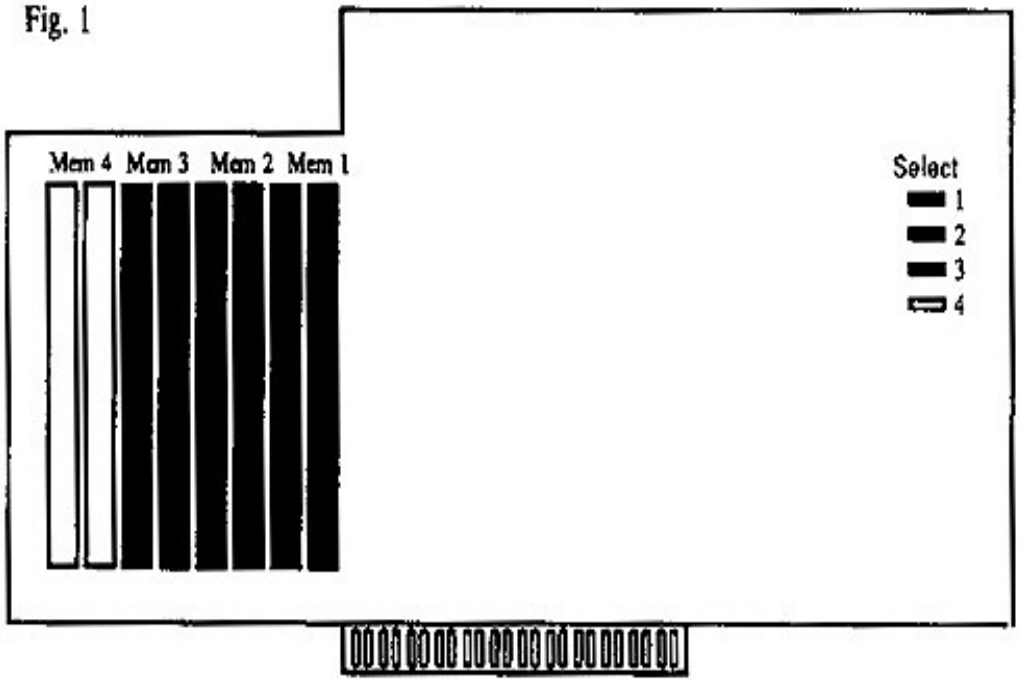
These Jumpers are located on the right hand side of the board with the word Select just above the jumper pins.

Option 1:

Memory Upgrade 1.5 mb and Apple 512k card.

The most common configuration would be to place the Memory Upgrade into MEM 1 of the computer, filled with 1.5 megabytes on the card and an Apple 512k memory card in MEM 2 of the computer. The 256k x 9 SIMM chips would be filling Mem 1, Mem 2 and Mem 3 while the Mem 4 slot on the card would be left empty. The jumpers would be set corresponding with the filled memory slots. Empty Memory slots would have an empty jumper. Thus, the jumper for pin 4 would not be jumped. See Fig. 1

Fig. 1

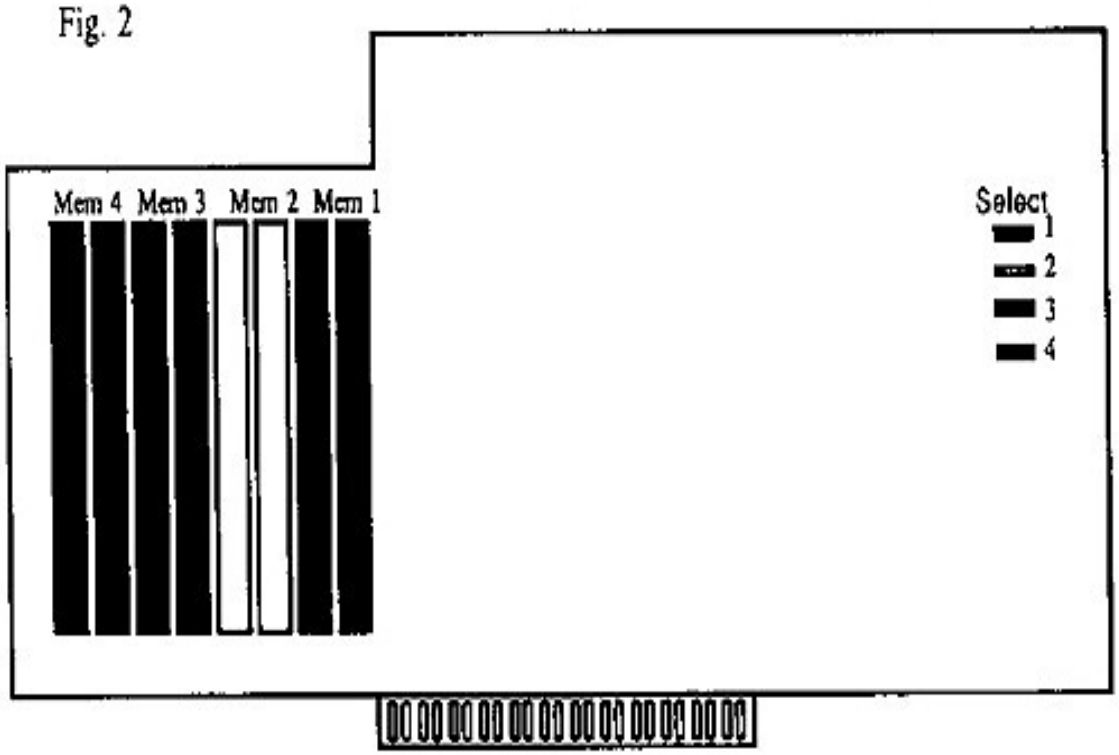


Option 2:

Memory Upgrade 1.5 mb without an Apple 512k card.

If you do not have an Apple 512k memory card in the computer's MEM 2 slot, you can place the 1.5 mb Upgrade card into MEM 1 leaving the Mem 2 slot open on the computer and on the Memory upgrade card. If an Apple memory card is not located in the MEM 2 slot on the computer, the Mem 4 slot on the card must be filled with memory and the Mem 2 slot can be left open. The jumper on pin 4 would be covered and the jumper on pin 2 would be left open. See Fig. 2

Fig. 2

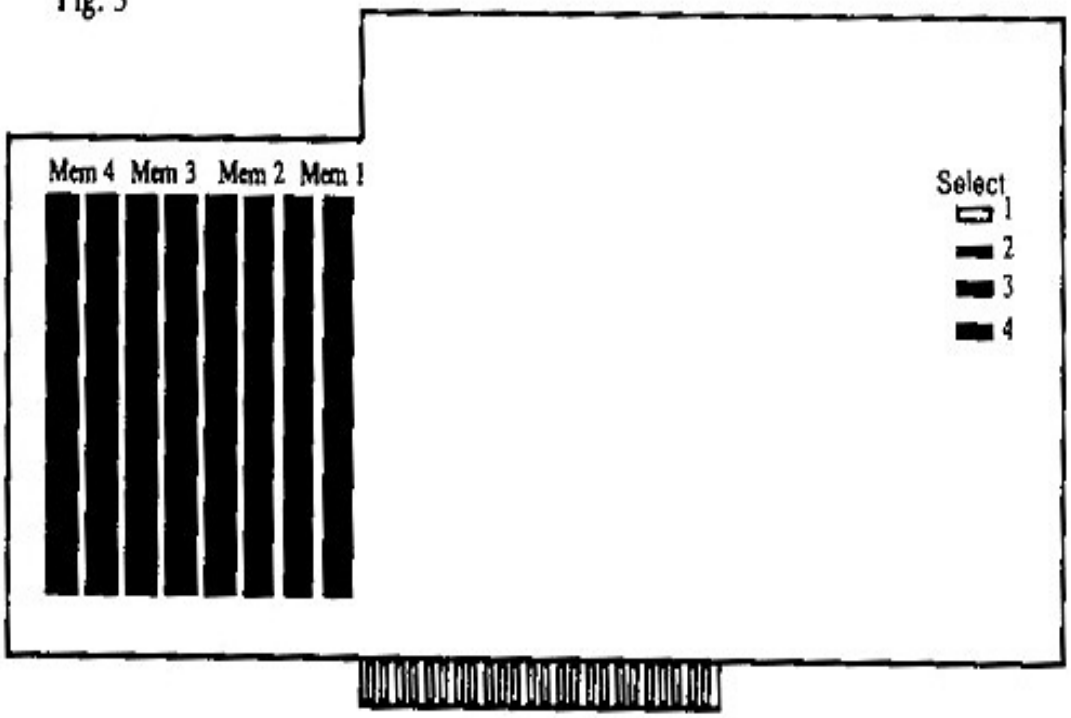


Option 3:

Memory Upgrade 2mb without an Apple 512k card

If you want to connect the Memory upgrade as the only card in the computer with 2 mb of RAM, you must place the card in MEM 1 and fill all the memory slots on the board with 256k x 9 SIMMs. The jumpers on all pins must be covered (see fig. 3). If you need an extra jumper, the jumper from pin 1 can be used. Mem 1 on the Upgrade card should always be filled and the pins for Mem 1 are automatically jumped.

Fig. 3



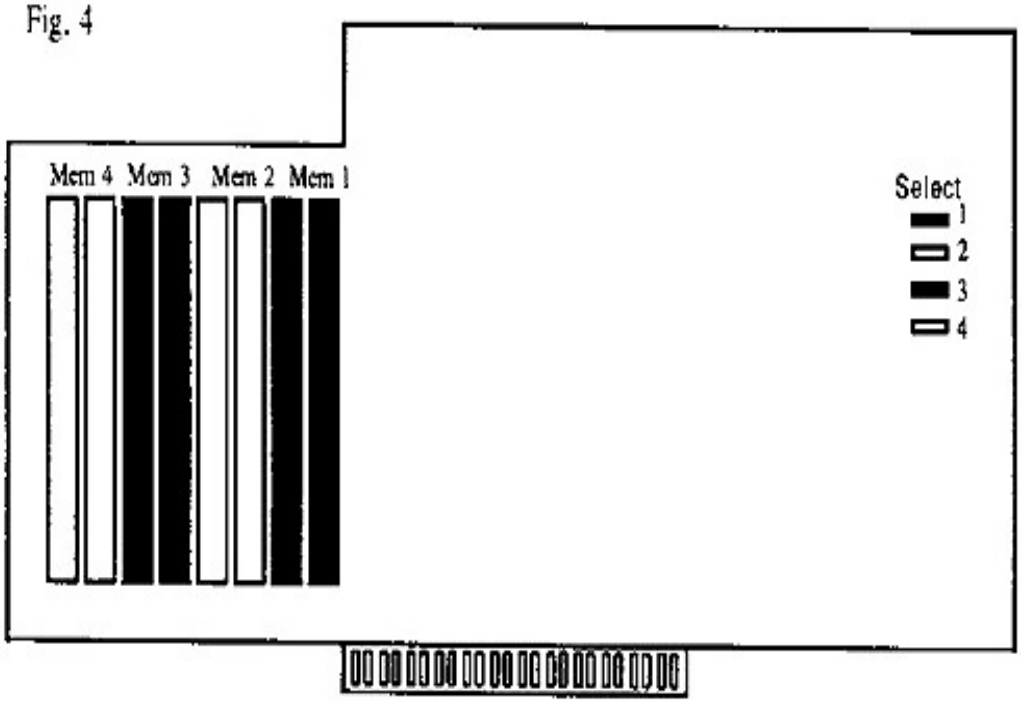
Option 4:

Memory Upgrade 1 mb with an Apple 512k card.

If you would like to use the Memory Upgrade with 1 mb of memory on the card and an Apple 512k card in the computer's MEM 2 slot, the memory and jumper configuration is as follows:

Mem 1 and Mem 3 slots on the Upgrade card would be filled with 256k x 9 SIMMs. While Mem 2 and Mem 4 can be left empty. Also make sure you have jumpers on pins 1 and pins 3 (see fig. 4).

Fig. 4

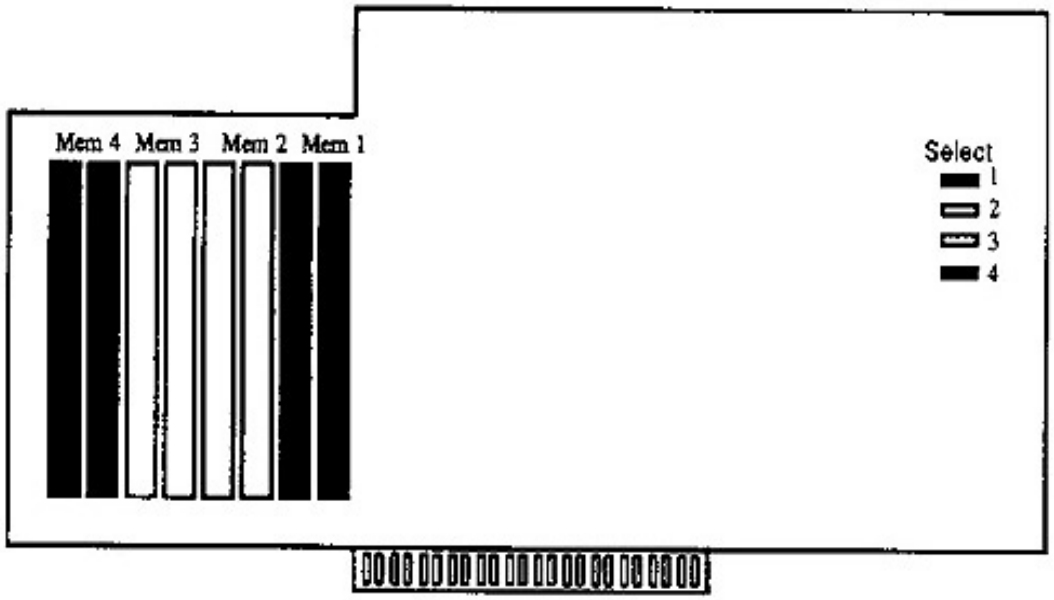


Option 5:

Memory Upgrade 1 mb without Apple 512k card.

If you would like to use the Memory Upgrade with 1 mb of memory on the card and without an Apple 512k card in the computer's MEM 2 location, the memory and jumper configuration is as follows: Mem 1 and Mem 4 slots on the Upgrade card would be filled with 256k x 9 SIMMS. While Mem 2 and Mem 3 can be left empty. Also make sure jumpers are on pins 1 and pins 4 (see fig. 5).

Fig. 5



Using Option 1 and Option 3 will allow you the greatest amount of memory available on the Lisa.